7: Thompson--367 J-4 (no date) 1937 Laotians
116, 175, 484, 654

"Not until 1889, when Pavie was given a semi-official mission and numerous collaborators to study the economic possibilities of the upper country, did France's interest there re-awaken. Despite Siamese opposition the mission was able to obtain precise and exhaustive information about the country, all the way from Yunnan to Cambodia, for the government and the newly formed French Commercial Syndicate of Upper Laos."

7: Thompson--374-375 J-4 (no date) 1937 Laotians
116, 439, 654

"When the French first occupied Laos, a number of investigations were undertaken to learn the country's commercial possibilities. The difficulties which the agents of the Commercial Syndicate encountered in the way of obstacles created by nature and by the Siamese, forced the government to grant it powers which gave a hybrid politico-commercial character to its activities. In spite of its semi-official support the Syndicate was doomed to failure, for a number of excellent reasons. [375] It was hampered by inadequate capital and knowledge of the country. Moreover, Upper Laos is an extremely unhealthy region, where even Asiatic merchants refused to go. The Syndicate's isolated efforts were concentrated on selling imports, which were more expensive than the Siamese and not so well adapted to the people's needs, and not on developing Laotian exports. The latter, to be sure, were food products, and hence very perishable. French industry simply did not produce articles essential to the Laotians, and what they sent to Laos was too high priced, not only as to original cost, but in heavy freight charges."

114 To Messrs. Jules Bosc and Louis Finot for their teaching, their advice and their kind encouragement;

To Messrs. Georges Coedès and Paul Vitry for their precious information.

The reader will pardon the errors of this modest compilation. Since the great Pavie who, by the "Conquest of hearts," gave this world to France, this is the first attempt at a chronology of the Laotian principalities.

P. L. B.

/1/ A HISTORY OF FRENCH LAOS

000

> Privileged corner of the earth, where manners have retained an exquisite simplicity, so rare among Asiatics, whose dominant characteristic is duplicity. My affection quite naturally went out to the Laotian people, so gentle, so peaceable and so trusting, whom gaiety never abandons, even in the worst misfortunes.
>
> Captain Cupet, Mission Pavie
> (Vol. III, p. 220).

CHAPTER I

GEOGRAPHICAL OUTLINE

131 The territory which is situated in the basin of the Mékong River and which is designated in the French Indo-Chinese Federation under the name of Laos, is included between 22° 30' and 13° 15' of north latitude and stretches from 97° 45' of longitude (the right bank of the Mekong) to 106° east of Paris.

Its political limits are: to the northeast Tonkin, to the north Chinese Yunnan, to the northwest /2/ the Anglo-Burmese State, to the west Siam, to the south Cambodia and to the east Annam.

131 654 Area. At present it is possible to give the colony's area only approximately. Any definite figure would run the risk of being incorrect, and indeed no complete triangulation has as yet been carried out. Laos, which is the last comer into the Indo-Chinese family and has neither sea frontiers, outlets nor an economic structure, is still isolated from the rest of the Union and is almost unknown outside the great valley of the Mekong. The labors of the officers of the Indo-

China Géographical Service /Service géographique de l'Indochine/ 131
and the road surveys made by administrators at the heads of prov- 654
inces nevertheless agree substantially in estimating the area of
Laos at approximately 250,000 square kilometers, or about half
that of France.

Population. This is the largest of the five countries in French 161
Indo-China, and it is also the least densely populated. According
to information collected on the spot, the population must be be- /162/
tween a million and 1,200,000 inhabitants, a figure appreciably
larger than the one figuring in the official documents, which esti-
mate it to be only 800,000. Persons of the Laotian race in the
strict /3/ sense form the majority. They populate the plains 162
which are watered by the Mékong and its tributaries and the low
altitude plateaus. The mountains are inhabited by highly diverse
races belonging to various ethnic types, some of which are related
to the Chinese, and others to the Tibetan branch, while still others
are grouped under the generic name of "Khas." These various
groups are scattered over the western side of the Annamitic Chain,
the foothills of the plateau of Trân-Ninh and in the upper valley of
the Mékong.

The extremely low population density is to be explained by the 162
Siamese and Chinese invasions in the course of the nineteenth 166
century. The "Hos," plunderers who came from Yunnan, massa- 648*
cred the inhabitants after they had burned their villages and forced 175
those who escaped famine or torture to settle in another region.
The Siamese proceeded in a more methodical manner and depopu-
lated the country by transporting inhabitants, livestock and ele-
phants to the right bank of the Mekong and oftentimes taking them
as far as the valley of the Ménam.

Upper Laos. Upper Laos, a ramification of the Tibetan pla- 133
teau, "is an inextricable tangle /4/ of wild and wooded moun-
tains in the midst of which paths wind like gigantic Russian
mountains" (1). The country has a savage look. These high 133
137

1. Dr. Lefèvre, "Le Haut-Laos" (Bulletin de la Société de Géographie commerciale, 1898).

mountain chains, which are cut here and there by deep valleys
where torrents which are often invisible flow, are covered with

victorious (1), and this expedition, which would seem to have 648* 643*

1. With the help of Trân-Ninh. 728 175*

been imposed on him, is the only campaign which is related during his long forty-three year reign.

According to the Annals he strictly observed the Buddhist teaching and followed, in a more docile manner than his father had done, the pious counsels of Pha-Maha-Pasaman-Thala-Tiao, his spiritual director, "and so his kingdom knew a long period of peace and prosperity." He was a great builder of temples, and erected the pagodas of Manorom, Ouposot (with a library which was given the manuscripts which had been brought from Angkor), and Xieng-Kang which was built in memory of his daughter, the young princess Sivayaka, who died of smallpox at the age of twelve. 643* 175* /645 792/

The Three Hundred Thousand Thaïs. In 1376 he gave orders for a general census of the inhabitants of Lang-Xang. The results gave 300,000 "registered" Thaïs, not counting women, children, bonzes, foreigners, slaves and Khas (2), and Oun-Hueun took /53/ 161 175* 654

2. The number of registered non-Thaïs was about 400,000.

/C.A.M. Translator's note. Page 53 is devoted to a map: "Lan-Xang and surrounding regions at the death of Fa-Ngoun (1374)". / as his reigning name Phaya-Sam-Sène-Thaï, the King of the Three Hundred Thousand Thaïs.

Social Organization. These folk then constituted a society grouped by families and divided into Nobles and Commoners. The Nobles were given certain privileges and helped to administer the kingdom, from the dignitaries who were princes of royal blood down to the simple officials who were responsible for collecting taxes, for assembling labor drafts, for transporting goods, etc. 631 585 175*

In the provinces the heads of circumscriptions (Muongs) were elected either from the Nobles or from the Commoners, but the choice of the electors generally fell on the son or some relative of the person who was to be replaced, unless there were some unworthiness or notorious incapability.

After the ratification of the treaty of 1862 with the court of Hue which gave us /230/ Annam's rights in Cambodia, it had indeed been realized that the neighboring kingdom was indispensable to the economic development of the Mekong delta. The admiral had at once sounded out King Norodom, who had eagerly welcomed his advances, but An-Duong's son had not yet been crowned and was not at liberty to express his sentiments openly. Two years after his father's death in 1861 he had been driven as far as Bangkok by his brother Sivotha's revolt. When he returned to his States under the protection of Siamese armed force he was subject at Oudong to the strict guardianship of his suzerain. Then the governor of Cochinchina forced the issue, appointed Ship's Lieutenant Doudart de Lagree as diplomatic agent in Cambodia and, despite the maneuvers of his Siamese overseer, had Norodom sign a treaty on August 11, 1863 placing his country under a French protectorate. In vain did Siam extract a clandestine treaty from the latter, by the terms of which he acknowledged himself to be its tributary and promised to go to Bangkok to be invested. As soon as Doudart de Lagree had word of this trip he placed the royal palace under military occupation and by his forceful attitude prevailed over the Siamese court, which /231/ sent the royal insignia and recalled its agent (1). 648* 175*

1. By the treaty of July 15, 1867 Siam recognized our protectorate and renounced all suzerainty over Cambodia. But its embassy in Paris cleverly threatened to place itself under British protection if we laid claim to the provinces of the Great Lake /Grand Lac/, and succeeded in keeping Angkor and Battambang for Siam.

Before attempting a methodical organization of the new colony it would be essential to gain some knowledge of the course of the Mekong, "the traditional trade route between China and the Kmer empire," beyond the Cambodian provinces. The question was posed in 1864 in a memorandum which caused a sensation in Saigon, by Francis Garnier (1), a young naval officer who was serving as 648* 175* 654

1. Francois Garnier, called Francis, was born at Saint-Etienne in 1839 and died at Hanoi in 1873 in a sortie in which Ensign Balny d'Avricourt was also killed.

648 an administrator. "Whence did this gigantic river come? What
175 regions did it water? To what peoples did it give access?... France
654 owed it to science and to its own interest to try in its turn to pierce the thick veil which had stretched over Indo-China for so long a time" (3).

3. Cf. P. Legendre, Nos gloires coloniales.

In 1866 Admiral de La Grandiere decided "to send out a mission to explore the course of the Mekong over as long a distance as possible /232/ from its mouth." It was placed under the command of Doudart de Lagree, who chose as his companions Francis Garnier, Ensign de Laporte, the naval doctors Thorel and Joubert and the young embassy attache de Carne.

The expedition left Saigon on June 5, 1866 on gunboats Nos. 32 and 37, visited the ruins of Angkor, went upriver as far as Kratie and then continued in pirogues. On September 10 it reached Bassac and after a thousand and one difficulties in the rapids of Kemmarat passed by Nong-Khay (1), an important trading center

1. Nong-Khay, built on the right bank some forty kilometers
/439/ (by the river) downstream from Vientiane, controlled the greater part of the traffic from Upper Laos -- benzoin, cardamom, salt, tobacco, pelts and lac. It is still an active market today, and is joined to Vientiane by a highway frequented by numerous trucks.

created by the Siamese to replace Vientiane, the impressive ruins of which the expedition saw, swallowed up as they were by the vegetation. It finally reached Luang-Prabang on April 20, 1867.

The explorers did not remain there for any length of time. After erecting Mouhot's mausoleum and exploring the region they decided to entrust all the instruments which were no longer absolutely indispensable to them, as well as their maps and their botanical and geological collections, to /233/ King Tiantha-Koumane who sent them to Saigon "with scrupulous fidelity." Then they set out again, "escorted by a throng of functionaries and of young women who cried for some kind of souvenir of their guests. Uniform buttons and the smallest galloons were given to them" (1).

1. Cf. P. Legendre, op. cit. /Nos gloires coloniales/

They struck out into the inextricable forests of Burmese Laos, 648*
which were "cut here and there by muddy ricefields and by over- 175*
flowing torrents," entered Yunnan which had been desolated by 654
the insurrection of the Tau-Pings, the latter further complicated by
new Moslem revolts, and were marching resolutely westwards into
the heart of the insurgent land when Doudart became exhausted and
was forced to halt. He was taken with difficulty to Tong-Tchouen
and to the French missionaries of Dong-Chau-Phu, but only to die
there of a hepatic attack on March 12, 1868. Francis Garnier then
took charge of the expedition, embarked at Hang-Keou bringing
back his leader's remains, and returned to Saigon on the following
June 28 after an absence of two years.

"A terrible voyage," concludes P. Legendre, "one of the most
daring of the century and which was also to cost the young de
Carne his life, but /234/ which established in a peremptory way the
necessity for France to wield a preponderant influence in Tonkin,
the key to China."

Resumption of relations between Luang-Prabang and Tran-Ninh. 648*
In the meantime Tiantha-Koumane had had occasion to resume 175*
continuous relations with the old kingdom of Xieng-Khouang.

Ever since its annexation to the empire of Annam (1) this land

1. See above, p. 178.

had been living in strict servitude. The exactions of the Quan-
Phu's soldiers weighed heavily on the natives, who were incessantly
ransomed and pillaged with the utmost severity. The authority of
the emperor's delegate met with resistance which was all the more /177/
keen in that this mandarin had undertaken a policy of brutal as-
similation the aim of which was to force the Laotian people to
adopt all the customs -- and even the clothing -- of the Annamites.
The agents which Siam secretly maintained in the region had not
failed to exploit the inhabitants' exasperation and to impel one of
Chao-Noi's cousins (2) whom Annam had mistakenly allowed to

2. Chao-Xan.

live freely in Tran-Ninh to open revolt. One /235/ fine night the
Quan-Phu was assassinated in his fortress together with his whole
guard, and the small Siamese force, which had taken part in the

but since it was ill-informed itself on the true political status of 648*
regions included between Cordillere /253/ and Mekong it invited 175*
the Annamite government at the same time to formulate its claims
in a precise and unquestionable manner.

Laborious and confused negotiations ensued at Bangkok. Solidly backed by Britain, Siam claimed that it was acting in good faith and that its only aim was to defend against the "Hos" those populations which had common factors of race, language and religion with it, while Annam asserted its rights of age-old suzerainty over principalities which had paid it a regular tribute ever since the seventeenth century and the farthest reaches of which beyond the mountains had, after the fall of Vientiane and at the express request of the native leaders, been converted into "Phus" and "Huyens" which were directly connected with the administrative divisions of the empire. Maps -- highly imaginative ones, moreover -- were produced on the one side and the other, one of them drawn up after the reconnaissance carried out by the British topographer MacCarthy in Upper Laos between 1883 and 1885, and another made by M. Deveria from information supplied by the court of Hue.

Creation of a French vice-consulate in Luang-Prabang (November 1885). In the face of these /253/ irreconcilable divergences, it was finally decided "to go and see" and the Siamese government consented to the establishment of a French vice-consulate in Luang-Prabang so that both parties might reach an on-the-spot agreement concerning the contested territories through their respective representatives. To occupy this position the French government designated an agent of the rarest merit whose personal action was to exert a profound influence on the course of events. This was Auguste Pavie (1).

1. Auguste Pavie was born at Dinan in 1847 and died in 1925 at his home La Raimbaudiere.

This good and simple man who "conquered hearts" for his country 114
over a territorial area which was then practically unknown and which 175*
was larger than that of France, this "charmer of peoples" who was to 654
die a minister plenipotentiary and grand officer of the Legion of Honor, had the most modest beginnings. Discharged in Cochinchina as a petty officer in the naval infantry, he entered the administrative branch of Posts and Telegraphs in 1868 and after the Franco-Prussian

114 War was placed in charge of the station at Kampot, a small Cam-
175 bodian port on the Gulf of Siam. He soon learned how to gain the
654 confidence of the natives and became passionately interested in studying the glorious past of the ancient Kmers. His enthusiasm determined /255/ Governor Le Myre de Vilers in 1880 to place him in charge of a mission for study and for the construction of a tele-
/647 graph line between Pnom-Penh and Bangkok. For five years he explored Cambodia in all directions, brought back abundant documentation from his voyages and the beginnings of the first map of the land which he had crossed, then returned to France with thirteen young Cambodians for whom the future Colonial School /Ecole coloniale/ was created in Paris.

175 His ardent desire, expressed many times to his superiors, to com-
654 plete his first labors by means of methodical exploration of the Laotian regions and to go "in the direction of those northern peoples who had previously attracted Mouhot, Francis Garnier and de Carne" and more recently Drs. Harmand and Neis (1), gained him an

1. Upon his return from the Tonkin expedition in 1874 Dr. Harmand had been placed in charge of a scientific expedition to Indo-China. It was in the course of this mission, the account of which appeared in the Tour du Monde ("Le Laos et les populations sauvages de l'Indochine") that he explored, in 1877, Lower and Middle Laos from Bassac to Lakhone and from Lakhone to Hue, crossing the Kemmarat, exploring the Se-Bang-Hien and gaining Hue by way of the Se-Tchepone. He thus proved for the first time that it was possible to go from the banks of the Mekong to the shore of Annam.

P. Neis, a naval doctor who was also given a scientific mission in Lower Laos by the Ministry of Education in 1882, had been told by M. Le Myre de Vilers as he passed through Singapore of the more immediate interest which the exploration of the regions situated between Luang-Prabang and Tonkin would hold. Given further information by Dr. Harmand, who was then consul in Bangkok, he went up the Mekong and reached the plateau of Tran-Ninh, but the Ho incursions forced him back to Luang-Prabang where he stayed for eight months (1883) without being able to resume his eastward march. He had to content himself with returning to Bangkok by way of Xieng-Sen and Xieng-Mai.

appointment /256/ as second-class vice-consul in Luang-Prabang 175*
with the duty "of seeking means of communication joining the 654
regions whose possession we claim to Annam and Tonkin." After
a stay of only three and a half months in France he returned to
Bangkok in the following March, impatient to turn his dream into
a reality, but he had reckoned without the ill will of the Siamese
authorities.

Provisory agreement of May 7, 1886. On May 7, 1886 a 648*
provisory agreement was signed sanctioning the creation of the 175*
French vice-consulate, but a clever draft of the agreement im-
plicitly recognized, as a guarantee, Siam's authority over the
Laotian principality. The Bangkok government flattered itself
that it would obtain the ratification of this act before the repre-
sentative of the Republic reached his post, and that the latter's
role would therefore be limited to defining the limits of "Siamese
Laos." The Quai d'Orsay had become more circumspect, however,
and reserved its /257/ acceptance until it received the first re-
ports of its representative (1). Thus Pavie was refused his exequatur

1. Pavie's recommendations and the dramatic events of June 1887 caused all notions of ratification to be abandoned.

and had to set forth "as a simple traveler" after waiting six months
for his passports -- just the time needed by the Chao-Meun to ful-
fill his mission in every particular. Pavie then had to take the
longest route by way of Xieng-Mai, where his progress was further
delayed for two months while the elephants necessary for his convoy
were collected.

FIRST PAVIE MISSION (1887-1889).

He did not reach Luang-Prabang until February 10, 1887, ac- 484
companied by eight Cambodians who showed themselves to be com- 648*
panions of the utmost fidelity and devotion (recruited for the most 175*
part, however, in a single day at Pnom-Penh) and by a Siamese
functionary "Whose duty it was to assist him in his relations with
the authorities of the country." Scarcely had he arrived before he
fell under the charm "of this delicate landscape which suddenly 000
takes on development through the action of a restfully gentle light."
From the right bank, where he proposed to build his dwelling, he
did not tire of admiring "the most /258/ beautiful site in Laos,

175* 648* Annamite prince Thuyet, the former regent of the empire, whose withdrawal to Muong-Lai (1) he admitted having aided and who had

1. After the dispersion of the bands Thuyet went to China under the protection of Deo-van-Tri.

granted him possession of all these territories.

On a map which he had had made he showed his interlocutor, who was stunned by his voluble eloquence, the Siamese borders which would henceforth be located beyond the Twelve Cantons, "dependencies of the principality of Luang-Prabang /263/ whose subjection to Siam France cannot fail to recognize, in accordance with the terms of the Treaty which at this very moment is submitted to its Parliament for ratification."

175* 648* 654 Of all these declarations, which at least had the merit of being clear, Pavie could for the moment retain only the possibility of resuming his journey so as to pursue one of the essential goals of his mission, namely the finding of a practicable route joining the Mekong and Tonkin.

A false start for Tonkin (April 1887). He therefore set out on March 30, went up the Nam-Ou as far as Muong-Ngoi and was heading towards the watershed between the Mekong and the Black River when, on April 17, he came across some fugitives carried by a dozen "freshly cut" bamboo rafts who told him that many armed bands had captured Muong-Theng that very night, that they were preparing to march on the capital and that "everyone had fled to the woods." He returned to Muong-Ngoi, from which he sent a courier to Luang-Prabang with this disturbing news. A week later he received a reply from the Siamese leader, who assured him that no importance should be attached to the matter, but that since the season was decidedly beginning to appear highly unfavorable it would be /264/ prudent for him to return to Luang-Prabang or, better still, to Bangkok. When he persisted in his desire to continue ahead his terrified boatmen threatened to abandon him. He was obliged to retrace his journey and return to Luang-Prabang, which he reached on May 10 only to learn the surprising news of the departure of the Chao-Meun and of the first Kaluong

648* definitely on the program of reconnaissance to be carried out for the
175* "commission of delimitation" with his new colleagues, the officers
/854/ Cupet and Nicolon, who had been chosen to help him in his topographical work (1).

1. In his profound satisfaction with the results obtained jointly with Colonel Pernot, Pavie was henceforth fully determined to "give" Laos to France. He notes this under the date of March 23 in his travel journal, in the odd rhythmical style peculiar to him: "I say the ideal -- which has possessed me -- of making of Laos -- a French land -- with the consent -- of its inhabitants."

Return to Luang-Prabang and voyage to Hanoi (March-May 1888). The latter had just reached Luang-Prabang as he himself arrived there (March 26). There he also found the Phya Surrisak who had arrived a few days previously with his troops and his hostages. A gentle calm reigned in the city, and bold comments were ventured on the demoralization of the bands which had been driven back by the French and on the discouragement of the Siamese agents "whose only thought now was to /278/ manage some honorable retirement in the Twelve Cantons." Everyone joyously awaited the return of the good king Oun-Kham to his capital, word of whose passage "in great pomp" had just reached Paklay.

The interview between Surrisak and Pavie was highly courteous and almost cordial. The two men, each of whom served their country in their own way but with equal devotion, could not prevent themselves in the long run from feeling a sentiment of reciprocal esteem for one another, Pavie judging with his habitual benevolence the Siamese leader who was a slave to his orders but always amiable and congenial, and the latter attracted in spite of himself to the astonishing Frenchman whose even temper and simple frankness in all circumstances seemed to him to be the manifestations of a prodigious cleverness and the peak of rascality. Pavie did not hide from him the results of the expedition which he had just finished, nor his firm intention to claim the Twelve Cantons as dependencies of Annam. As for fixing the frontiers, he thought this would be possible only after completion of the studies which his assistants were about to undertake and the further reconnaissance which he himself proposed to make towards Hanoi to the northeast across the regions which were still occupied /279/ by the Black Flags of Ong-Ba, one of Luu-Vinh-Phuoc's lieutenants whose submission he was counting on.

With this double purpose, he entrusted the consular post to 648*
Nicolon, who was specially assigned to the Luang-Prabang "sector," 175*
and set out on April 8 accompanied by Cupet for Takhoa by way of Ngoi, Son and Muong Hett where the latter was to leave him and continue his operations in Tran-Ninh. He also took with him three of Lai's captives (1) whom Surrissak had handed over to him --

1. Cam Houil, Deo-van-Tri's brother; Cam Doi, his brother-in-law and chief of the canton of Tuan-Giao where Pavie had met the Pernot column; and a talahie (captain) of the Black Flags.

not without hesitation -- and of whom he was able to make convinced allies within a few days. As he reached Hett he was accosted by a group of grief-stricken women who asked him to have mercy on their husbands, a group of twenty or so pirates who had been captured weapons in hand by the French outpost of Son-La and who were to be shot. Pavie at once dispatched a courier asking the leader of the Son-La post to suspend all warlike acts until further orders. This gesture of clemency was at once rewarded, for when Ong-Ba learned of it he came at once to thank Pavie for having saved the lives of twenty of his men, offered him the hospitality of his post and /280/ gave him three confidential emissaries who were to take his submission to Hanoi.

The trip was completed without further incident. General Begin gave Pavie an extremely warm welcome and received kindly the Chinese delegates who had trusted in him. Then without losing any time and so as to allow the government of the colony to draw /654/ some profit from the knowledge of the country which he had just acquired, Pavie gave the general a political study including a complete program for pacification and for the gradual establishment of our authority over the cantons of the Black River. The letter by which he was thanked for his work deserves being quoted almost in its entirety, for it eloquently sums up the task accomplished and "goes to the point" by illuminating with precision this first step in our settlement in northern Indo-China:

Hanoi, July 28, 1888.

"General Begin, commander-in-chief of the troops of Indo-China, to Monsieur Pavie, vice-consul of France in Luang-Prabang, Hanoi.

648* Grasse arrived on March 24 and established himself at Nape, and five
175* days later Pavie left for Hanoi where he reported /289/ the results of
his investigations. The authority which was henceforth attributed to
648* his person and to his opinions was so great that he was able to persuade
175* both the Quai d'Orsay and the Bangkok government, without any dis-
654 cussion or delay, that it would be necessary to organize a new ex-
ploratory mission which by ethnographical studies and a complete
topographical survey of the left bank of the Mekong from Yunnan to
Cambodia would once and for all prevent all risk of conflict and all
future disputes in the matter of the frontier. Since the ministry of
Foreign Affairs wanted to consult with him personally in Paris about
the work which had been accomplished and the new program to be
elaborated -- and inasmuch as the Siamese government had suggested
suspending all negotiations in his absence -- Pavie agreed with the
Siamese leaders on a reciprocal observation of the status quo until
such time as their governments should have reached a decision relative
to the territorial questions, and embarked for France where he arrived
on June 12 (1889).

After three years of efforts, the upshot of his campaign was the conclusion that Bangkok's claims to Laotian territories were everywhere subject to question. When Vacle showed surprise that the Siamese /290/ had not invoked the question of the watershed and especially that of the Thai race in Cammon, rather than the fable of the pirates, Pavie replied with an extremely clear exposé of his opinion of the Siamese thesis, to wit:

"Politically speaking the geography and ethnography of Siamese lands are within the province of its diplomats only and not of its soldiers. Invoking these two pretexts, if they had never been preceded by claims, would not have justified in Siam's own eyes the sudden invasion of these territories. The incursions of pirates, which actually occurred in the north, had constituted a pressing danger which it warded off. Although such raids did not occur here, it saw in them a pretended excuse.

"When its fault or error had been seen by our side, good sense decreed that it should withdraw as it had come. It is obvious that Siam has no such course in mind, for it has great hopes of the discussions which it thinks will go on until our side grows weary.

"For your edification on the other points, those of the limits and races, here is the question if it should arise. The watershed does not provide Siam with any means for determining the frontier either on the British side nor on the French side. It is an exception for

Burma and for Cambodia, and as for Annam, the mere mention of 648*
the claim which /291/ Siam recently had to the highlands of the 175*
Black River, or the claim which it still has to the thousand sources 654
of the coastal rivers in the north of Annam (canton of the Huapanh, region of Tran-Ninh), would destroy any contrary opinion and make any discussion on such a subject ridiculous.

"The ethnography is quite another matter. Our reply might well be to ask if they would give us back the Cambodians. We might also say that the Siamese people is composed mainly of Thais, but that four countries beside it each contain a much larger number, these being Burma and China, Tonkin and Laos. Would Siam, the smallest of them all, have the pretension to swallow them all up? And what would it say if one of the stronger ones had the idea of uniting them all?" (1)

1. Mission Pavie, Vol. VII, pp. 270-271.

These explanations, which were given in confidence to the future "government commissioner" of Luang-Prabang who did not then know that he was to hold this office, were developed by Pavie when he reached Paris to the officials of the Quai d'Orsay, and the latter made them their own. They were to become the basis of French argumentation in the subsequent discussions with the representatives of Siam, and a few years later their basic solidity was to find its reward in Siamese renunciation and in the creation of Indo-Chinese Laos in accordance with /292/ Pavie's most heartfelt desires -- that is to say, "with the consent of its inhabitants."

SECOND PAVIE MISSION (1889-1891).

But in 1889 we were still far from our goal. Pavie employed the five months of his stay in France to organize his second mission, the program and content of which were determined by common agreement by Spuller, the minister of Foreign Affairs, and Etienne, the undersecretary of State for the colonies. To Pavie's first colleagues, who were particularly responsible for the topographical work, were added specialists in the natural sciences and in commercial and industrial work. "These latter were to study the question of means of communication by land and by river, to set up trading posts, to collect samples, to examine the trading procedures now in use and to determine the nature and value of the products of the Mekong basin" (1). A company was formed under

1. Cf. L. de Reinach, op. cit. /Le Laos (Posthumous

648* edition), Paris, 1911./, p. 9.
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654 the name French Syndicate of Upper Laos, which placed a first ship-
/439/ ment of fifteen tons of merchandise at the expedition's disposal.

Pavie set sail again on November 17 for /293/ Bangkok, where he stayed for only two weeks, just long enough to make contact again with our representative in Siam and to reopen negotiations with the Siamese foreign minister, who was specially appointed for the purpose by King Chulalongkorn.

On January 23, 1890 he reached Hanoi and rejoined his old and his new companions (including, among the latter, the embassy attache Lefevre-Pontalis, the vice-consul Lugan, the trader Macey, Professor Counillon, the Postal Commissioner de Coulgeans, the naturalist Le Dantec and the officers Riviere, Friquegnon, de Malglaive, Dugast and Cogniard). He divided them into several groups of operators who scattered on February 3 throughout Tran-Ninh, Cammon and the region of Stung-Treng, while he himself set out for Luang-Prabang with a last group of "fervent disciples," where he arranged to meet all the members of the mission six months later so that they could coordinate their first labors over the winter months.

Duly provided, through the intermediary of Governor General Piquet, with the authority of the king of Cambodia and that of the emperor of Annam for settling questions of frontier delimitation, and with a passport from the Chinese government /294/ which would eventually allow him to explore the Yunnanese frontiers, he first
/624/ went to Muong-Lai where Deo-van-Tri was waiting for him. Faithful to his promise, now that all his brothers had all been freed Cam-Sinh's son awaited his arrival so that he could offer himself to the French authorities, "placing all his pride in giving himself up to that man who had restored calm to his land" (1).

1. Cf. Mission Pavie, "Geographie et Voyages," Vol. II, p. 12.

Pavie had an enchanted voyage. Although the magnificent valley of the Black River no longer held for him the powerful attraction of the unknown, still he felt a profound joy as he daily noted the changes for the better which had occurred since his last trip among
/727/ these peoples. "The influence of Pennequin (who had accompanied
/178/ him with Vacle and Lefevre-Pontalis) was there, clearly marked at each step... no more Flags in the well-known colors, all had

departed... tranquillity was established to such a degree that one would have thought the recent past was quite remote." 654 648* 175*

Submission of Deo-van-Tri (April 1890). He met Deo-van-Tri on April 7. Under his proud exterior, the heir of the great feudal lords of the Thai cantons could not conceal /295/ his feelings of deep emotion and gratitude from the liberator of his family, and Pavie knew that this old adversary of his country was henceforth won over for good and all. As the first proof that he had rallied to the French cause, Deo-van-Tri gave him the seal which had been delivered to the sovereigns of Laos by China and stolen by his own Hos when Luang-Prabang was sacked (1), then he returned some thirty 175* 636

1. See above, p. 191, note 1. Pavie writes in Vol. II, p. 21: "It (the seal) constitutes a document establishing the vassaldom of this land (Luang-Prabang) to China, whose rights over it have become ours."

women and children from the Laotian capital who had been held captive ever since 1887. Finally, in "simple and worthy" language, he expressed his ardent desire to enter into active and devoted cooperation with the mission. During the days which followed he conversed at length of his family's past, of his own, of that of the cantons, of "the good which he saw could be done for the general prosperity of the region, of his campaigns with Luu-vinh-Phuoc, of his campaign in Luang-Prabang and his conduct towards the proscribed regent of Annam to whom he had been devoted in his misfortune and who, once he had reached safety thanks to him, had tried to have him massacred for fear that he might later reveal the secret of his sanctuary."

/296/ Pavie persuaded him without difficulty to accompany him as far as Theng, and their life together during five weeks was enough to ensure Deo-van-Tri's attachment to the French leader and his companions. Sure of him and certain that he had his confidence, even while journeying along Pavie commissioned him to organize administrative transports on the Black River and to make preparations for a voyage of exploration which he planned to make with him at the beginning of winter along the Yunnanese border and as far as the western frontier of the Sip-Song-Panas to fix the limits of the Thai cantons of the Upper Mekong where the last Chinese bands were still flourishing.

phantom king (1) who had remained "under the guardianship of a 642 631

1. Chao-Kham-Souk, one of Chao-Houy's sons (see above p. 168 and p. 177, note 2) who had been placed on the throne by Bangkok in 1863. His fief had been dismembered by the treaty of 1893 and was in reality no longer anything but a Siamese province. He was to die in 1899. 647 /175*/

Siamese agent of an inferior type." At Khong he met Commander Tournier, who had been placed in charge of the Legion troops stationed between Stung-Treng and the islands of Khone, and who was also invested with civil powers in the muongs of the left bank while awaiting the imminent arrival of administrators from Cochinchina (this latter country was to organize the southern Laotian provinces at the expense of its own budget). On August 9 he witnessed the arrival of Lieutenant-commander Simon, the leader of a hydrographic mission /329/ which had been planned the year before by M. Delcasse. This mission was to employ the sloops La Grandiere and Massie and to go on surveillance duty on the Middle and Upper Mekong. With this purpose it was to: 1) trans-ship its cargo at Khone; 2) cross the dangerous defiles of Kemmarat by every possible means; and 3) stop "only where it was materially and absolutely impossible to get through." At the cost of tremendous effort the mission was to reach Luang-Prabang on September 1 and Tang-Ho on October 25, 1895 at a distance of 2500 kilometers from the sea and an altitude of more than four hundred meters (1). On 654● 505

1. The bold results of the Simon mission demonstrated the possibility of organizing a regular navigation service from Saigon to Luang-Prabang by using either steam sloops or pirogues, depending on the season. The service was later established.

August 13 Pavie reached Pnom-Penh and then went to Hatien where the gunboat Vipere was waiting for him. The latter took him to Bangkok on the 20th, and scarcely had he landed when he hastened to inform both the Quai d'Orsay and Prince Devawongse of the discoveries he had made all along the Mekong, namely that the treaty had not been made known to the populace and that the king of Siam's proclamation relative to the return of former inhabitants of the left bank of the river to their own country was still unknown 648* 175*

648* 175* everywhere. In the restricted zone on the /330/ right bank troops of soldiers were still circulating and Siamese functionaries had taken the place of the local authorities. In that part of the kingdom of Luang-Prabang which was situated on the right bank of the Mekong there was an obvious attempt -- and one clearly contrary to the treaty -- to transform the region into a Siamese province.

654 Without taking time to argue, he merely cited the fact that Chantaboun was our guaranty and that its evacuation could necessarily not be envisaged until complete satisfaction had been given to our innumerable claims. Then he embarked on September 3 for Tonkin, where he rapidly organized the important campaign which he was to undertake along the upper Black River and the Upper Mekong for the purpose of drawing up a map of the region on the very spot.

654 648* 175* Delimitation of the frontier with China (December 1894). Accompanied by the Messrs. Lefevre-Pontalis, Caillat and Oum, by Commander Tournier, Dr. Lefevre and several topographical officers, and wondrously aided by Deo-van-Tri who took great pride in providing, first in French territory and then in Chinese territory, for provisions at the various stops, for finding coolies and horses, for the chance repairs /331/ which the paths required, etc. (1), he reached

/186/ 1. "Never had our excellent assistant taken more pains to make us succeed. He thus manifested his gratitude not only for the past but also for the present, for he knew that the French government was determined not to cede China any of his territories, part of which the Chinese agents had had hopes of taking from him. He knew that he was indebted to us for having shed light on this question which was such a grave one for him and his people. He loved us all the more for it, and his people vied with their leader in their enthusiasm for us." Mission Pavie, Vol. II, p. 298.

Muong-Le in December where without any difficulty he established the frontier line in full agreement with the two Chinese commissioners. The latter, knowing the place he held in the cantons and the perseverance with which he had steadily aimed at their pacification, manifested a perfectly correct and conciliatory attitude (2).

/642/ 2. The agreement awarded the two Muong-Hou to France.

648* 175* As soon as they met the two missions, British and French, set to work. Living side by side, after three months of the same kind of life their members were on terms "of cordial simplicity." Since they made the same maps they reached the same conclusions, and finally judged that the creation of a buffer state would only result in creating a permanent source of intrigues on their frontiers and a true den for rebels, pirates and highwaymen. The British government had the good sense to accept Scott's arguments and not to adhere blindly to its first claims. By the terms of the declaration of January 15, 1896, which was supplemented by that of April 8, 1904, it finally recognized the thalweg of the Mekong as the frontier between its Burmese possessions and French Laos. As a consequence the territory of Muong- /334/ Sing was permanently awarded to us in March 1896.

Dissolution of the Pavie mission (August-September 1895). This happy state of agreement -- a prelude to the "Entente cordiale" -- was the last manifestation of August Pavie's activity in Indo-China. For the rest, his task had been accomplished, at least the one which he had set himself seven years before: "to make of Laos a French land" (1). If the task was not complete it was nonetheless "fertile

/114 654/ 1. The geographic results which were also achieved by Pavie and his colleagues were immense. The distance which they had covered in their journeys was more than 30,000 kilometers, and the area of the territories explored was about 675,000 square kilometers. Each member's explorations went into an atlas and ten volumes dealing with the ethnography, literature and natural history of the regions traversed. (See the bibliographic index at the end of the present work.)

in its means and great and beautiful in its results," and if there were errors to correct and gaps to fill Pavie was certainly not responsible for them. Moreover, he was also to be asked to remedy faults which he had not committed. The just claims which he had formulated both against Siam's interpretation of the treaty and against the treaty itself had, in fact, attracted the attention /335/ of his department. The latter being desirous of reaching an overall decision governing all questions relative to the frontiers which Indo-China and Siam had in common (Cambodia and Laos), it reopened negotiations in Paris and summoned Pavie to "illuminate" the talks which were to be begun

648* 175* Siamese high commission" meeting in Vientiane and presided over by the superior resident in Laos was established to study all questions arising from the application of the new system, including definition and /352/ delimitation of the river frontier; determination of the regime to be applied to the demilitarized zone; eventual modification of the system of leased concessions which had previously been granted to France on the right bank; and elaboration of regulations /654/ governing the program of public maintenance and improvement works along the Mekong, policing the river, policing navigation, sanitary police, fishing in the river, etc. The carrying out of these extremely liberal provisions, which was begun in all sincerity in January 1928, justifies us in believing that a true entente cordiale has been reached to the greater profit of the two neighboring States.

ACCESSION TO THE THRONE OF H. M. SISAVANG-VONG, KING OF LUANG-PRABANG, 1886. -- KING 1904.

643* 175* King Zakarine died in Luang-Prabang on March 25, 1904 at the age of sixty-three, at the very moment when the agreement which we made with Siam at this time fulfilled his last desires with respect to the integrity of his domains. The heir apparent Sisavang-Vong, who had just finished his studies in Paris, was on the way to Indo-China. He was back in his country's capital in time to attend the cremation ceremonies. /An unpaged photograph is inserted between pp. 352 and 353: "H. M. Sisavang-Vong, king of Luang-Prabang. "--Translator/

643* 178 /353/ The Laotians of today. On March 4, 1905 the new sovereign solemnly received his investiture from Superior Resident Mahe acting in behalf of the government of the Republic. Profoundly attached to France, H. M. Sisavang-Vong has for more than a quarter of a century exercised, under our supervision and with the utmost loyalty, his high and benevolent authority over his faithful and trusting people. Thanks to his prestige, and to his great personal activity, and thanks also to the precious help given us by his dignitaries, some of whom have the most enlightened and active comprehension of the civilizing mission which France has set herself in the Far East, the Laotians of the kingdom have wholeheartedly accepted our methods of social renovation and of making their magnificent land productive. They are awaking from the kind of lethargic somnolence into which their historical calamities had plunged them. They have regained the consciousness of their political personality

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Such overt acts were the certain prelude to a more complete annexation, and finally shook off our torpor and quickened our vigilance.

Since the king of Annam, our new protégé, had rights over this region which were equal and in several cases superior to those of Siam, our intervention became necessary. It resulted in the treaty of May 7, 1886 (1).

(1) See Appendix VI.

[10] So that the treaty should not remain mere words, the Government of the French Republic sent M. Pavie (1) on a geographical and 175 127 654

(1) Now minister plenipotentiary.

political mission in Upper Laos and named him consul in Luang-Prabang, but without Siam's exequatur.

The work of this first mission provided precious information on all the regions invaded by the Hos and later occupied by the Siamese.

With the help of Commander Pennequin (2), our valiant consul

(2) Now brigadier general; former interim governor general of Madagascar.

succeeded in driving the last bandits back to China and made the advance outposts which had been established by the Siamese withdraw to the far limits of the Mékong basin. Turning this situation to their profit, and now strong in the knowledge which they had acquired, our diplomats concluded with the court of Bangkok, so as to be able to face any difficult eventuality in the future, as well as to give us time for reflection, the arrangement of March 27, 1889, by the terms of which Siam agreed to respect the status quo (3).

(3) "By the terms of this agreement the Siamese troops were to halt their eastward march, and then evacuate the region of Cammon. A Siamese 'Kha-luong' was allowed to remain in this province for the time being, and we obtained the right to construct a military post at Napé." E. Picanon, 1900. Le Laos français. [648]

149: Reinach--7 G-3 (no date) 1901 AM1 Indochina
Laotians AM8
Colonial

SIAM'S VIOLATION OF THE 1889 ARRANGEMENT
VARIOUS INCIDENTS
OCCUPATION OF LOWER LAOS--NAVAL DEMONSTRATION AT PAK-NAM
ULTIMATUM AND TREATY OCTOBER 3, 1893

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The arrangement of 1889 was unfortunately much too lenient. Even several years after the fall of the great and clairvoyant patriot Jules Ferry, however, and as a consequence of the profound discredit into which the whole colonial idea and cause had fallen among us, our political situation made it impossible for us to take more effective measures and to assert the rights of our protégé, the emperor of Annam, in a more pressing way. [11] Nor could we give full satisfaction to the completely legitimate requests for protection which were made by the king of Luang-Prabang.

Our political difficulties were perfectly well-known to the Siamese government. Emboldened by our hesitation, it consented, in agreement with Great Britain, to arrangements and delimitations of frontiers in the Shan States which annihilated the plan conceived by Jules Ferry in 1883 and canceled all the results of the Deloncle treaty concluded in 1884 (1) with Upper Burma, which was then

(1) See Appendices VII and VIII.

independent. This treaty, in effect, recognized as limits of "French Tonkin the Mékong River, from the point where it leaves China as far as Xieng-Sèn," including the Pahn-Na on the left bank, the principality of Muong-Sing and the States of Pou-Kha, Xieng-Khong and Xieng-Sèn to the west of Nam-Hou.

In exchange for this territory--a gracious gift which cost it all the less in that it did not belong to it--Great Britain obtained Karennée (or Karèng) from Siam. The latter territory was situated in the valley of the Salouen, and had been under Siamese domination for centuries.

The delimitation of the Anglo-Siamese frontiers, including those of the Shan States of Xieng-Mai, Lam-Poun and Muong-Haut, was completed only in 1892.

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In 1889 M. Pavie was sent on another mission and was accompanied by many civil and military assistants whose particular province was to be topography and the natural sciences. A

commercial and industrial mission was attached to the former, and it was to study the question of means of communication by land and river, to create trading posts, to collect samples, to examine the commercial methods in use and to determine the nature and value of the products of the Mékong basin. Funds for this mission, which left France with an initial stock of fifteen tons of various kinds of merchandise, were provided by a syndicate which had just been formed, with an initial capital of 100,000 francs, under the name of French Syndicate [12] of Upper Laos. It included representatives of Parisian trade and industry who had united for the experiment thanks to the initiative of M. Léon Tharel, the president of the group.

All throughout 1890 and 1891 the missions fulfilled their tasks with ardor, not without constant struggle against the implicit hostility of the Siamese, which although occasionally concealed under an [Illustration here] affable outward mask nonetheless continued to manifest itself and created obstacles everywhere in the hope of discouraging the valiant explorers and causing their work to fail.

In spite of the difficulties which they encountered, the two missions were successful in their delicate enterprise and the results of the latter were most significant. From that point on we were in possession of precise information concerning the whole region extending from Yunnan to Cambodia.

What was more, by continuing the tradition begun by Mouhot, the [13] Lagrée mission, Harmand, Néis, etc. we had made contact with the Laotian people and made them know and love the French name. In us they saluted their future liberators and the ones who would come to free them from the brutal and detested Siamese yoke.

Finally--a fact of no less importance--thanks to the activities of the commercial mission, to the trading posts which it had established and to the contacts and arrangements which it had prepared, we were in possession from that time on of private commercial interests in the Mékong basin. Thus greater force was given to the rights which we already had to intervene in Laos against Siamese intrigues in the name of our protégés, the emperor of Annam and the king of Cambodia.

Frightened and surprised by the results which France had achieved in so short a time in the Mékong valley, despite the ambushes which it had laid on all sides and the hostile maneuvers which it had supported, Siam began to fear that France might invade its Laotian territories. It then invoked the friendship of Great Britain and

503 member of the Lagrée mission, in 1891 (1), "have resulted in a plan

113 (1) L. Delaporte, La grande voie commerciale de l'Indo-Chine, 1891.

505 to establish a complete service serving the course of the Mékong, in order to divert its trade to the heart of the kingdom of Siam via the fine Sé-Moun river and then take it by railway to the capital and the sea. This plan is now in the process of full achievement. Two steamships will very shortly be introduced, one on the middle course of the river between Bassac and Kemmarat with its headquarters at Pak-Moun at the river junction, and the other on the Sé-Moun between Pak-Moun and Khorat at the point where the river ceases to be navigabl and this service will be completed by a railway joining Khorat to Bangkok."

505 503 654 It was thus a question of out-distancing the Siamese sloops. Governor General Piquet himself became interested in the matter and embarked on board the Cantonnais (October 1891) in the hope of passing the Khône rápids and showing the French flag in the upper reach. The Argus, under the command of Ensign Guisrez and serving as a look-out ship for the Cantonnais, reached Khône and tried to reconnoiter the passage. The latter had been shown by the inhabitants to M. Pelletier and Dr. Mougeot, two Europeans who then held the concession to the large island of Ca-Lomnieu, and was accessible at certain times of the year to pirogues coming down the river. But the season was far advanced (it was the end of October). The low water made it impossible to attempt the desired trial, and the Cantonnais had to return to Saigon.

In the meantime the Argus anchored in the pass of Ka-Sedam between the rapids of Tat-Vai and Tat-Lieu in order to complete the studies which had been begun and the exploration of the river as far upstream as possible. For more than two years this launch tried to negotiate the passes, but failed because of its large draft, its instability and its lack of speed.

The persevering energy and efforts of its commander were not lost, however, for they prepared the way for the work subsequently undertaken in these parts.

It being impossible to find a suitable passage for [65] [Illustration] [66] [Blank page] [67] steamships, a transshipment railway was built

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across the island of Khône. It was further necessary to establish two docks, one a tidal dock and the other a launching basin, at South Khône and at North Khône, especially for the transshipment of launch cargoes.

Lieutenant Commander Simon expressed himself as follows in a lecture which he delivered to the Geography Society [Société de Géographie] on May 15, 1896:

"Believing themselves protected, thanks to this natural barrier, from any repressive measures on our part, the Siamese had crossed the Mékong at Kemmarat, Lakhône and Outhène and were invading Annam little by little and establishing advance posts as little as three days away from Hué. This took place in 1892.

"The government became alarmed, and in order to satisfy solicitations by Cochinchina at the same time, it decided at the suggestion of M. Delcassé in March 1893 to purchase two screw-propelled gunboats, the La Grandière and the Massie, which were intended to exercise surveillance over the upper Mékong.

"These two ships were to be set afloat above the Khône waterfalls. From there they were to negotiate, by any possible means, the Kemmarat gorge which is particularly dangerous for its rapids, and then show their flag at daybreak in the great reach, presumably navigable, which extends from Kemmarat to Vien-Tiane and whose eastern bank includes Annamite Laos.

"Such was the object of the mission which was entrusted to us.

"It was at the same time a hydrographic mission whose work was to take the Khône waterfalls, which steam navigation has today brought within four days' journey of Saigon, as its point of departure and stop only when it was materially impossible to proceed any further.

"As far upriver as possible and as far as possible, these were the orders of the day.

"The ships, which were demountable in five sections, were assembled and set afloat at Saigon in August 1893, and their transshipment past the waterfalls was accomplished in one piece, that is to say without disassembling them, on a carriage which was built for the purpose and which rolled along a track. The track, which was one meter wide, started at the downstream end of the falls, that is to say in the lower basin, and ended in the upper basin after crossing the island of Khône.

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"The administration of public works of Cochinchina was particularly responsible for carrying out the work. The operation was directed by Messrs. Gubiand, the engineering director of public works, and Crouzat, the chief clerk of the department of civil engineering [conducteur principal des ponts et chaussées], and was fully successful despite the haste, the difficulties and the mishaps and tribulations which we had to undergo.

"On October 31, 1893, five months after the mission's arrival in Saigon, two ships, the Massie and the Ham-Luong, had passed the Khône waterfalls.

"The Ham-Luong was a sloop from Cochinchina which was sent at the last[68] moment and in all haste to replace the La Grandière numerically and provisorily, the latter being disabled below the falls as the result of grave damage to the engine."

After they had been floated in the upper reach the Massie and the Ham-Luong pushed on to Bassoc immediately, then to the junction with the Sé-Moun. The Massie finally reached Kemmarat on February 28, 1894, after successfully passing the 120 kilometers of rapids just below it. There the Massie had to wait for high water before it could pass the Keng-Sa, one of the most dangerous obstacles in this region. In the high water season of 1894 it was in the Vien-Tiane reach, where it showed the French flag over an extent of more than 500 kilometers. On September 5, 1894, the La Grandière went to Khône in its turn, on its way from one reach to another, and then in November caught up with the Massie which it soon passed. Finally in August 1895 Lieutenant Commander Simon took the La Grandière through the series of rapids stretching over a distance of 350 kilometers between Vien-Tiane and Luang-Prabang, which he reached on September 1.

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"This brilliant success demonstrated France's power to the friendly and hostile populations of the banks of the Mékong. Through the more frequent sight of our officers, our weapons and our cruising steamships, which ammounted to ambulatory offices, it strengthened the work accomplished by our diplomats on the left bank, which belonged to us henceforth" (1).

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(1) Lanier, L'Asie, 1898. Selected readings in geography.

We rejoice at being able to render deserved homage here to the abilities of Commander Simon who, in the midst of the greatest

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difficulties, was able to complete the daring work which he had assumed. He did not fear to turn his own hand to the task by giving largely of himself and often remaining in a pirogue in the middle of the river, despite the heat of the sun, in order to seek out a passage for his gunboat.

But Luang-Prabang was not to be the terminus of the La Grandière's journey.

[69] "The difficulties which had long been pending in western upper Laos had just entered into a more acute phase. It was more than ever timely and urgent for us to strengthen our diplomatic arguments with the help of effective justifications of our rights based on accomplished facts.

"We had to show our colors still farther upstream, at least as high as Xieng-Khong, that is to say, in the heart of the territories which others had attempted to detach from our influence by proposing that they remain neutral" (1).

(1) Lieutenant Commander Simon, op. cit. [Lecture delivered to the Société de Géographie on May 15, 1896.]

On September 8, the La Grandière resumed its march upriver. "Finally we reached our last stage, Tang-Hô, on October 25, 1895. We were a day's journey from Xieng-Lap, at 20° 40' N. latitude, 2500 kilometers from the sea and at an altitude of more than 400 meters. Here the La Grandière was stopped once and for all, for in the present state of things Tang-Hô must be regarded as the limit of all possible ventures in steam navigation, at least when the water level is low" (2).

(2) Lieutenant Commander Simon, op. cit.

These conclusions did not give pause to Lieutenant Commander Mazeran, for he took his gunboat further still. It is now at Xieng-Lap, immobilized and unable to return downriver. There is some question of disarming it and attempting to bring it down to Luang-Prabang by surrounding it with a bamboo sheath. It could at least be used and render some service in Luang-Prabang.

The results of Lieutenant Commander Simon's mission relative to the navigability of the reaches of Bassac and Vien-Tiane enabled the Cochinchina River Merchant Fleet Company [compagnie des

505 Messageries fluviales de Cochinchine] to introduce a regular service
503 of steam launches there. To this end the company signed a contract
654 with the general government of Indo-China, the purpose of which was to organize a complete service from Saigon to Luang-Prabang for passengers and merchandise, using steamships and pirogues by turns, depending on the navigability of the river and on the season. The task was a difficult one, for it was first necessary to enlarge the [70] tidal docks and launching basins and to rebuild, strengthen and correct the railway on the island of Khône to permit the transshipment of three steam launches weighing seventy tons each (1). This [Illustration

(1) The gunboats Massie and La Grandière weighed only twenty-two tons each.

here] was a veritable tour de force which had to be repeated three times. During the high water period of 1893 (2) the operation was

(2) For this transshipment, as for that of 1894, human labor was the driving force. Only since August 1898 has a locomotive run along this railway.

carried out with complete success, [71] [Illustration] [72] [Blank page] [73] thanks to the combined work and efforts of the local administration and the River Merchant Fleet Company [compagnie des Messageries fluviales]. Today one of these ships, the Garcerie, is assigned to regular service in the Bassac reach between Khône and Pak-Moun. The two others, the Trentinian and the Colombert, have followed the path laid out for them by the gunboats through the Kemmarat rapids and provide service in the Vien-Tiane reach over a distance of nearly 500 kilometers (1).

(1) Just recently the launch Hamluong, which is 22 meters long, has a draft of 1.3 meters and a speed of seven to eight knots, has gone upriver through the Kemmarat rapids under the command of the engineer Jeanneau and has reached Vien-Tiane where it is at the disposition of the Superior Resident.

503 Here, then, is an initial result achieved. During the high water
505 period steamships can provide service from Kratié to Khône. Others

132 Vegetation dries out then, and some plants and trees even lose their leaves. The earth cracks and pulverizes under the action of the drought and sun.

2. METEOROLOGICAL STATIONS

[654] The meteorological system of Laos includes:

1. Main stations:

Vien-Tiane, administrative capital of Laos and seat of the Superior Residency.

[112] 2. Secondary stations:

Luang-Prabang, Savannakhet, Khong, Attopeu.

3. SANITARY CONDITIONS

132 164 At the beginning of the rainy season the body is tired out after the excessive drought and heat of the last two months, and is predisposed to attack by the fever-bearing mosquitoes and various bacillae for which river water serves as a vehicle after it has watered the vegetation. It is then that the many different kinds of fever strike, with their characteristics varying depending on season, region, race, individual and temperament. Attacks which take a pernicious form are rare, however, both in the natives--who are nevertheless without preventive treatment--and in Europeans, who are better protected by a good diet and specific medication.

To be sure, in a form which may be more or less benign these attacks of paludism end, in the long run, by damaging even those temperaments which are most robust in appearance, especially if the latter suffer from any kind of stomach, liver or intestinal disorder. It is also at this time of the year, as well as during the first cold spells, that dysenteric diarrhea and diarrhea in the strict sense occur, striking both natives and Europeans.

The cause of these afflictions may be attributed, in May and June, to excessive ingestion of insufficiently ripe fruits and vegetables, and in November and December to nocturnal abdominal chills. The various liver ailments also strike during the changes in season.

Cholera is epidemic in the country, and reappears at more or less distant intervals. Each year, however, diarrheic cholerine claims a number of victims among the native population.

near their silkworm breeding houses, but it is unfortunate that the new conditions in which the trees are placed should have an adverse effect on silk production. On the plateaus and in the high valleys, in the vicinity of land once occupied by villages, there are many mulberry trees which have continued to survive. They send out new leaves again even after the annual burnings of the forest clearings, and bear leaves which are vigorous and have a more pithy appearance than those of their fellows in the low, humid parts of the country. They are also said to be preferable for feeding silkworms (2).

(2) See Appendix XXIV.

Local consumption absorbs the greater part of the silk production, for the majority of Laotians, both men and women, use it in making the garments which they wear.

We do not possess exact data on the total production of silk in Laos. It has been estimated at about twenty tons annually. The price varies from 400 to 500 francs per hundred kilograms.

OPIUM POPPIES. The opium poppy is cultivated by the Yaos and the Meos, in northern Laos. Towards the end of the rainy season, [376] in September, the poppy seeds are sowed broadcast on land from which maize has just been harvested. Germination is activated by the last rains of the season and the plant flowers at the beginning of December. Harvesting is done shortly after the petals have fallen.

Closely spaced lengthwise incisions are made all along the surface of the capsule, allowing the plant juice to escape. It coagulates upon contact with the air and is collected daily until the plant has been completely exhausted (1).

(1) See Appendix XXV, report of M. Lussan, Cochinchina customs agent. The latter was sent on a mission to Upper Laos to experiment with growing opium poppies by less rudimentary methods than the ones in use among the Meos and the Yaos.

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PAPER TREES. There are several trees in Laos whose bark is used to make paper. They seem to be of the mulberry type and are called "Kok-Sa."

The paper is made by hand on forms, by extremely rudimentary methods. Its manufacture occupies several villages of northern Laos.

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Coffee. The coffee bushes which have been planted in Laos by way of experiment in different regions and at different altitudes, depending on the variety (Liberian or Arabian), seem to be thriving. A few small plantations, like those on the Black River (on the frontier of the Sib-Song-Chau-Thai) and at the mission of the Bahnars, are even said to be producing a full yield already. But these results are still too sketchy for us to be able to state that the cultivation of coffee in Laos is ready to leave the period of experimentation and be undertaken on a large scale.

If it is true, as some say, that planting coffee in Annam and Tonkin has been extremely disappointing, then this does not offer encouragement for trying this crop in Laos.

Jute. The fiber of this plant is in great demand for making grain sacks and cloth wrapping material known as gunny. Although some jute is grown in Annam and Tonkin, in Indo-China we are still dependent for this product on British India, which sends us large quantities of it. The cultivation of this plant might be tried in Laos, in the higher parts of the country.

III

FOREST PRESERVATION AND CONSERVATION--REFORESTATION

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The administration of Laos has made an effort to remedy, insofar as possible, the indifference of the population as concerns conservation of forest resources. It has taken measures to facilitate the reforestation of hills and plateaus which have been cultivated as rais.

These measures were indispensable, if any attempt was to be made to prevent the hills and hillocks of Laos, as well as the mountainsides, from becoming bald and sterile over the years as has already occurred in the Sib-Song-Pahn-Na and the northern regions. The heights do not have any trees or green foliage, the rock is bare on their [391] prominences, and only in the valleys which face to the north is there any soil containing vegetable matter.

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This deforestation and denudation are due to the annual burnings which spread from one rai to another at the time when the inhabitants turn to new clearings. Out of indifference they allow the fires to consume the young vegetation which was beginning to cover the old rais and which, by holding back the soil containing vegetable matter, was attenuating the destructive effects of erosion.

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Furthermore, the oft-repeated clearings cannot fail to have a certain influence on the atmospheric state of the region and on the constitution of the soil. Deforestation, in fact, brings about the denudation of high points all the way down to the rock which has not yet become decomposed, and rainwater, by carrying sterile alluvia down to the valley bottoms, partly obstructs the beds of rivers and causes the latter to overflow and erode their banks.

Furthermore, since clouds are no longer stopped by the forests which used to cover the heights they carry their fecundating water elsewhere at the very time when it is the most needed.

The result, in the last place, is a diminution in the yield from plains ricefields, which suffer from this insufficiency of natural irrigation.

Finally these clearings, made in a brutal, arbitrary and irrational manner, were causing the disappearance of useful varieties of trees forever. A little soda and potash is the only benefit to be drawn from combustion of the forests, and even this fertilizer is carried off by water in the following rainy season.

Henceforth, in accordance with the instructions published throughout the whole country by the superior administration of Laos and by the province administrators, cultivation on rais will be subject to the following regulations.

1. Sites to be cleared shall be determined by the local authorities, who shall choose land sufficiently far from old rais which are in the process of being reforested so that fires may be kept from spreading.

2. Rais in the process of being reforested shall be surrounded by a ditch [392] and by felled trees and brush. The owners of the nearest rais shall keep a careful watch, despite these precautions, in order to prevent fires from spreading.

3. When trees of a fine growth or of a useful variety are found on land which has been selected for the purpose of making a new rai, these shall be felled according to custom. But instead of burning them on the spot the woodcutters must push them off the limits of the rai and into a place safe from fire, so that they may later be utilized.

4. Furthermore, the local authorities shall oblige the inhabitants to sow or plant rapid-growing trees with roots sufficiently powerful to hold back the soil containing vegetable matter, over the whole area of abandoned rais.

By following the above procedure on all abandoned rais, it is to be hoped that they will be restored within fifteen or twenty years and will have enough humus so that they will again lend themselves to cultivation.

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When restored in this manner, their vegetation will reestablish the hygrometric regime of the region and the rational distribution of ground water.

FOREST PLANTATIONS

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Starting from the principle that trees of hardwood or precious varieties will rapidly disappear as soon as the forest riches of Laos are regularly exploited, a few administrators have thought that it would be wise to begin now and plant selected varieties.

This precaution will not seem either excessive or premature if one considers the time it takes for any tree whatsoever to reach full growth and acquire commercial value.

Since no reliance can be placed either on the people's initiative or on their willingness to concern themselves with plantings, it has been proposed that action be taken by way of authority. The inhabitants of each village, and particularly the registered inhabitants, would be forced to plant each year, in suitable spots which are easily accessible and near inhabited centers and watercourses, a certain number of trees of the [393] [Illustration] [394] [Blank page] [395] most useful varieties, which were well suited to the climate and soil of the region, and then forced to supervise their growth.

An example has already been provided in the way of teak plantations, for higher authorities had seeds of this precious tree distributed to the natives through their administrators.

The Laotians are so carefree and have so little concern for the morrow that many of them allowed the seeds to spoil without sowing them. It was necessary to issue orders and even make threats before the seeds were finally sowed.

One day we may therefore hope to see a great many teak trees rising from the ground where today there grow only the dwarfed and inferior quality trees of the forest glades. They will provide a source of inestimable wealth for the land (1).

(1) In Siam, teak exports represent an annual value of six to seven million francs.

Colonel Tournier, the Superior Resident in Laos, recently took the following measures for the conservation and reforestation of the teaks in the region of Xieng-Khong:

1. Designation by the Administration to the concessionnaire of trees which must be notched;

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2. The obligation on the part of the concessionnaire to rid the young teaks of the lianas which choke them;

3. The obligation to replant ten young teak shoots for every tree which is felled;

4. The obligation on the part of villages near groups of teaks to open up roads leading to these groups; a prohibition against making rais and cutting down trees without permission; the obligation to plant from fifty to a hundred teaks per house each year, depending on the remoteness of the village.

In return, the inhabitants of these villages need not fulfill the twenty days of labor drafts due each year.

Besides teak, we may recommend the planting of certain other trees, such as the "Mai-Niom-Pha" (mock mahogany), the "Mai-Thon" (mock walnut), the "Mai-Kha-Nioung" (mock rosewood), the "Mai-Lang-Dam" (ebony), etc.

The eucalyptus would doubtless grow well in certain regions of Laos.

PROVINCE EXPERIMENTAL GARDENS

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For several years now there have been experimental gardens in each commissionership. They serve as trial fields for the cultivation of certain European and Asian plants which are unknown or rare in Laos.

[396] These gardens are also schools of practical agriculture for the natives. Seeds and plants are distributed to the latter, and they are given extremely summary bits of information about certain plants whose cultivation would be advantageous from the point of view of commercial transactions. These gardens are destined to render services to future colonists, and the trials which are made there deserve encouragement.

Although not all heads of provinces possess the same degree of agricultural and horticultural knowledge, they devote the utmost zeal to making the most of their gardens. Seconded by their staff and guided by the enlightened counsels of the Superior Residency, of the department of Agriculture and of the directors of the botanical gardens of Indo-China, most of them have already achieved satisfactory results.

[113] The special periodicals such as the Bulletin économique de l'Indo-Chine, the Revue des cultures coloniales, etc. which are sent to each commissioner are of invaluable help in this connection (1).

(1) Some of the libraries in the commissionerships contain a book

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of the highest merit entitled Petit traité d'Agriculture tropicale, by H.A. Alford Nicholls, translated from the English by E. Raoul (Paris, 1895, Challamel). This work, which is as complete as it is practical, cannot be too highly recommended.

IV

LIVESTOCK BREEDING

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Without speaking of the poultry which goes to feed the population, the Laotians engage in breeding elephants, horses, buffalo, oxen, pigs, goats and silkworms.

Elephants. Elephant breeding is profitable, even [397] though this animal does not acquire any commercial value until about its fifth year. It is true that young elephants do not necessitate any special care or any expense, since they always go with their mother and provide for their own food.

In one part of the kingdom of Luang-Prabang, in a province on the right bank of the Mekong which numbers scarcely 13,000 inhatitants (Outhai-Tani), there were a hundred some domesticated elephants in 1898, plus twelve young ones which were the result of breeding. If the example of this province were followed throughout all Laos the number of elephants would rapidly increase, and within a relatively short time would constitute a new source of wealth for the country, one part alone of which was said to possess a million of these animals before the Siamese incursions (1).

(1) The kingdom of Luang-Prabang used to be called "Lan-Xang," The Land of the million elephants.

But with each invasion which Laos underwent, especially during the nineteenth century, the Siamese, the Annamites and the Cambodians did not fail to take turns despoiling it of this veritable wealth in order to increase their own.

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In southern Laos, breeding consists mainly in the training of young animals which have been recently captured. Thus in the province of Ban-Mouang the vast plains of the Se-Kampho and the Sepien provide excellent pasturages for elephants. Indeed, there are always fifty or so newly captured animals in the vicinity of Ban-Pa-Pho, which are being trained for sale. It is to be regretted that these beautiful plains are not used for raising livestock in general and

[563] The breed of horses in Laos is therefore continuing to degenerate. Certain Kha tribes (Djarais and Rades), however, still possess very fine specimens, but these Khas will not sell their horses and mares except with a great deal of urging and at a very high price. They never come and offer their horses to buyers, and only by chance can the latter discover any by traveling through their villages. It is a certain fact that most of the fine horses of Phu-Yen and Binh-Dinh come from the region of the Rades (1).

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[654] (1) The establishment of a depot of stud-horses in Darlac, in the midst of these Kha tribes, may soon give excellent results from the point of view of production and breeding.

In southern Laos, no epizootic disease has yet been noted among horses. The same is not the case in northern Laos, where it causes great ravages every year in the province of Vien-Poukha. The progress of this epidemic has been described in the following manner by M. Garanger, former Government Commissioner at Vien-Poukha:

"Well before any exterior symptoms of the disease appear, the horse manifests a bad disposition, sulks over its food, carries its head low and is anxious to lie down. Its hair becomes dull.

"Then under the abdomen a swelling appears which extends from the breast to the testicles (to the vulva in mares). It rapidly increases in volume and grows as thick as a man's hand. The scrotum and penis (the vulva in mares) [400] take on an abnormal growth. Exploration by hand reveals considerable obstruction in the hollow space within the lower jaw, yet there is no discharge.

"The animal then has difficulty in walking, then the hindquarters act as though paralyzed. It falls down in the stable and remains down until death, which is not far off.

"The period of algidity varies in length. Old horses do not last more than seven or eight days after the swelling forms, while young animals may not die until around the twentieth day.

"The epidemic always strikes during the rainy season and seems especially active in July and August.

"If the carcass is opened after death it is found that the whole interior (viscera) is covered with thousands of little black dots the size of a pinhead. This disease seems to be extremely contagious. In vain did I practice isolation and burn three contaminated stables in succession. Yet it also breaks out spontaneously, since it struck at the same time in Vien-Poukha, in Xieng-Khong and in the brush,

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Years	Number of animals exported	Average purchase price in Laos	Sale price at outlet markets
		francs	francs
1898	103 Horses	50	112.50
1899	185 Horses	From 30 to 125	From 88.50 to 225
	14 Mares	From 30 to 75	From 40 to 95

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Finally, we recommend the introduction of donkeys into Laos, with a view toward producing mules by coupling the donkeys with Laotian mares. The mules of Yunnan, which are highly reputed, reach heights as great as 1.32 meters. Extremely sturdy, they can readily carry a net weight of ninety kilograms of merchandise, not counting the saddle and pack-saddle. It is obvious that much use might be made of these animals in Laos for all kinds of transport.

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Buffalo. Buffalo breeding is much in honor throughout all of Laos. It supplies the needs of agriculture and of food consumption, which absorbs a large number of these animals, particularly young ones. Many of them, in fact, are sacrificed on the occasion of celebrations and various ceremonies, while others are used daily for food in some of the larger centers.

It may truly be said that buffalo are raised everywhere, and since this animal is extremely hardy it can always find enough to eat, even in the forests.

The administration is encouraging the raising of buffalo in a most effective way, and since our arrival in Laos the work has grown by such proportions that exports of buffalo to nearby regions has assumed genuine importance. (4,721 head in 1898 and 3,144 in 1899.) When we entered into possession of Laos, however, the land had been largely depopulated of its animals. They had been removed by the Siamese, and it is nothing short of miraculous that the herds have been restored in so short a time despite the considerable losses caused by periodic outbreaks of epizootic disease, often extremely violent.

These favorable results have been achieved thanks to the wise foresight of the higher authorities, who prohibited all exports and imports as long as the bovine plague lasted.

231 654 It is much to be desired that the work of our physiologists may finally be successful and place at the disposal of everyone serums which will be capable of fighting the epizootic diseases which are decimating horned animals. In the meantime our administrators can only recommend to the natives a few rules of veterinary hygiene, a feeble protective measure against the epidemic. They should be particularly careful to see that dead carcasses are not thrown into watercourses.

231 492 262 825 Oxen. In Laos, oxen are raised mainly for use in transport or for export as animals for slaughtering. In the far north they are also harnessed to carts.

The Laotians have an instinctive repugnance for beef meat, and eat it only when an animal dies by accident or has to be killed as the result of a wound or broken bone. There are even certain prejudices and certain customs in this matter, which are doubtless vestiges of another age when the ancestors of the present-day inhabitants were pastoral people among whom slaughtering [404] oxen for food was prohibited under penalty of a fine.

231 Whereas the buffalo in Laos are sturdy and of a fine height, the oxen often leave much to be desired. This is due to the fact that the natives raise oxen as they do buffalo, that is to say by leaving it to forage for itself. Although the buffalo, a hardy and autochthonous animal, requires almost no care in breeding, the ox, which is a cross-bred animal, imported and not so tough, requires a great deal of care and management. But when ox raising is treated like buffalo raising, the result is an inferior product and thence a progressive degeneration of the breed.

The Youns, the Lus and the Burmese are the only ones who have a complete mastery of raising oxen as draft and pack animals, and who produce individuals of comparatively tall stature which are sturdy, courageous and resistant to fatigue. They are even able, thanks to suitable treatment and care, to condition and train the often puny specimens which they sometimes go great distances to buy, even into southern Laos.

231 The oxen of Song-Khone (1) and of the Kham-Thong-Niai-Saravane

439 (1) In 1898 the presence of about 1,500 oxen and cattle was reported in this province.

region are destined mainly to be sold for meat in Cambodia and in Cochinchina, and this is quite a lucrative trade.

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The above engineer remained in the country for more than a year. He made a careful study of the deposits, and the report which he presented to the Company upon his return from his mission stated that we had been too modest in our estimates; that the gold-bearing deposits were of the first order, easily workable and almost at ground level. He concluded by proposing that a company with a very high capital be formed (1). Things seemed to be going well when an

(1) The content of these deposits varies from 3 to 14 grams of visible gold per ton of alluvia or of rich gravel.

event took place which reduced all our hopes to naught and rendered sterile the efforts of the Mining and agricultural company of Laos.

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Subsequent to a report by M, Mallet, an engineer sent by the government to prospect the region with which we are dealing, the governor general issued a decree dated February 16, 1896, stipulating that "possession and exploitation of gold-bearing mines or mines so reputed which are situated in the kingdom of Luang-Prabang on the left bank (between the Mekong and the Nam-Hou) may not be effected, until further notice, except by public tender."

This decree was not known in Laos until the engineer Isnard was actually on the spot. But it was justifiable to suppose that when confronted with the capital which had been collected, with that which had been offered, and with the work already done the government would invite tenders for the deposits.

Such was not at all the case. Today in 1900, it is still not the case!

The consequences may easily be guessed. Faced by this occurrence with the impossibility of doing anything at all, the Company abandoned the matter.

In the interest of Laos and of the finances of French Indo-China, we should like to express the wish (2) that the above-quoted decree be

(2) A proposal made by M.P. Macey before the 1900 Convention of Economic and Commercial Geography [Congrès de Géographie économique et commerciale de 1900].

abrogated and that the further notice of which mention is made be given within a short time so as to enable French capital to be put to good use in this part of our possession.

314 The bark of these varieties is lighter in color, with green, gray and red spots. The leaves are a duller green and the fruits heavier and longer.

[32] These lianas belong to the highlands of Laos and to the thick mountain forests. The Mac-ka-khay is very plentiful in Borikan; the two following ones are found in the region of Van-Vien and the Tang-tong, which is quite rare, has been found in the interior on the right bank of the Mekong, as well as in Paksan.

In the absence of botanical specimens, we can only suppose that all these varieties belong, according to the indications given as to their fruits, to the Apocyneae family.

As for the samples of rubber which we have from these plants, some in balls and others in rolls of small dimensions, they all seem to have been obtained by the method of coagulating latex with heat in a receptacle of a certain size. The gum has remained sticky, and today, after having been kept for a year, all of it except one or two samples has become soft and viscous.

I am nevertheless persuaded that two or three of these lianas will yield rubber which is as good in quality as that of Nghe-An, provided that the crop is harvested in "tears" or in threads, this being the best system for avoiding the inclusion of putrescible serum.

Moreover, the rubber produced by these lianas already constitutes a noteworthy trade commodity in the Hua-Phans. M. Chaussé, one of our countrymen, has been making sizeable purchases of rubber there for several years, and comparatively large amounts of this product are said to be marketed in Cho-Bo at the rate of 45 piasters per picul, that is to say at more than two francs per kilogram.

[426] M. Delineau, whose commercial ventures in rubber in Tran-Ninh have also been brought to light, has bought wax and rubber there and tried to make the population accept loans which would be repayable in rubber.

314 654 But disadvantages are already arising in these regions--disadvantage of which the cascarilleros, or seekers of cinchona trees, once set a bad example in Brazil. Since the elastic gum is coming more and more into demand in Upper Laos, in some places the natives have hacked and massacred the producing plants in order to obtain the coveted merchandise more easily and in larger quantities.

Since this habit shows a tendency to become widespread, in Muong-Son M. Montpeyrat has drawn up restrictive measures against these clumsy procedures. And in order at the same time to encourage cultivation of these plants which yield a desirable product, he has

314 .654 established a seed-garden designed to supply the inhabitants with cuttings and to teach them the most advantageous methods of exploitation.

314 I do not, however, believe that there is any need to fear the danger of the present barbarous method of exploitation, provided that it be carried out in a radical fashion. This estimate of the situation, which seems paradoxical, can be justified as follows. If the native fells the liana with a blow of his machete, it is best for him to cut it off at ground level. I assume that he will not be content merely with collecting the latex which flows out of the cutting [133] thus made, but that he will cut the liana into suitably small sections and collect the greater part of the latex which the whole length of the stalk contains at the time. This amount will certainly be greater than the amount which would flow out of an incision made so as not to compromise the life of the plant. What is more, new shoots will sprout from the foot of the felled liana, and it will then be a question of protecting them from too hasty a destruction so that after the required number of years there will be new plants which can be tapped. This amounts, so to speak, to exploitation of the rubber lianas by a radical pollard method. It would become profitable the day when the industry could obtain a constant output of rubber from the fresh or dried leaves, as is now done for gutta percha.

I believe, however, that exploitation by the method of regular and annual tappings of the adult plant is preferable by far. Felling would present really grave dangers only if it caused the felled plants to disappear and never to return.

We now have specimens of rubber from various regions of Upper and Lower Laos--from Vien-Tiane, Cam-Muon, Savanakhet, Ban-Mouang, Saravane, Song-Khone and Khong.

From the point of view of quality these specimens can be divided into two groups which, it would appear, are determined by two causes: their botanical origin and the way in which they are harvested.

The first group includes specimens in a compact, hand-kneaded ball the size of a billiard ball, or in twists from 10 to 15 centimeters long and 2 to 3 centimeters in diameter which are collected in bamboo tubes. These specimens are blackish, softer and less resilient, and occasionally contain hollow parts which are filled with a black pitch-like substance.

The second group includes specimens which are lighter in color, reddish and even whitish, dry and resilient. They are harvested in tears, thin strips or agglutinated threads, from which balls are made

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439 of 40,869 francs; to Hong Kong warehouses, 1,271 kilograms with an estimated value of 2,458 francs; making a total of 14,894 kilograms valued at 43,227 francs.

Thus while the customs statistics for the years previous to 1898 do not even mention the export figures for this product, we find that the 1898 figure, which is a little more than two tons, has more than sextupled in the first quarter of the following year, which is the current one.

This amount of progress gives us every right to conceive real hopes for the future.

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654 The general government of Indo-China (Department of Agriculture and Commerce) recently sent to the business house Michelin et Cie. (Clermont-Ferrand, and 7 Rue Goumod, Paris), for the purpose of analysis and evaluation, specimens of rubber which were collected in Laos through the offices of the superior resident.

According to the report of the superior resident in Laos, these specimens were produced by a liana, the Khua-nhut-niai of the Laotians, which is quite widespread in the thick forests on the banks of the Mekong and on the Bolovenes massif, as well as on the sides of the Annamitic Chain. One of the specimens submitted for analysis (No. 1) comes from a variety of rubber which is found particularly in Saravane. The other (No. 2) is the ordinary rubber harvested by the natives, with no further processing.

[135] An expert chemist sets forth in the following terms the results of the examination to which these specimens were subjected at the rubber factory of Michelin et Cie. at Clermont-Ferrand (August 5, 1899):

"The rubber in both boxes has the outer appearance of rubber from the Dutch East Indies of the kinds known in trading circles as 'Java,' 'Penang' or 'Preanger.' Like the latter, it probably comes from plants of the Ficus family. This presumable identity of origin is confirmed, moreover, by the characteristics of the isolated gum and resin of these specimens, as well as by the nature of the bark fragments which the specimens contained.

"We purified this rubber mechanically by the usual shredding processes. The thin leaves thereby obtained were dried in a drying-cabinet at a temperature of 25°-28° C.

149: Reinach--435 G-3 (no date) 1901 AM1 Indochina
Laotians AM8

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	No. 1 Saravane	No. 2
Weight of specimen	.608 kilog.	1.86 kilog.
Weight of purified gum	.58 kilog	1.54 kilog.
Yield of purified gum	95.39%	82.79%

Proximate analysis of the product yielded:

Moisture at 105°	1.06	1.4
Fixed ashes	1.3	1.4
Resins	3.4	9.76
Rubber	89.24	87.44

For comparison, the following is an analysis of Java rubber:

	Type 1[a]	Type 2[a]
Moisture	.75	
Ash[illegible]s	.8	1.3
Resins	4.48	7 to 9%
Rubber	93.97	
	160.00	

Indo-Chinese rubber, if in accordance with the specimens examined, would be likened on the market to Java type 2[a] rubber, which is graded and regulated as follows:

First quality Java rubber includes sound gums, without resinified parts (parts which have turned oily), of a fine light color, and without bark fragments.

Darker gums containing some fragments, but which are still sound on the whole are classified as second quality.

The third quality includes rubber which has been harvested with less care or in the wrong season, which has been poorly preserved, is more or less resinified and laden with foreign matter, ligneous debris, bark, sand, etc.

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The following figures, taken from the daily price lists on the markets of Antwerp, Hamburg, Liverpool and London, will give some idea of the commercial value of these types of rubber.

PRICE QUOTED ON "JAVA" OR "PENANG" ON THE VARIOUS EUROPEAN MARKETS

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Source	Date	Grade 1a	2a	3a
Hamburg	7-30-1899		6.95	
"	7-8	8.95	6.95	
"			7.55	
"	6-28		7.55	
London	6-1	8.98		
Antwerp	3-14			3.00
Amsterdam	4-10		7.59	
Antwerp	3-3			3.00
Le Havre	11-18-1898	8.40	5.85	
Hamburg	11-9	8.45	6.55	
"	11-2	8.55	5.55	
Antwerp	10-25			3.00
Hamburg	10-11	8.80	6.25	
"	9-9	8.80	6.25	
"	9-9	8.75	6.30	

(Bulletin économique de l'Indo-Chine. Report of the Director of the Indo-China Department of Agriculture and Commerce, October 1, 1899.)

II

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In August 1900 the Indo-China Department of Agriculture and Commerce sent to the Colonial Office, for purposes of analysis, specimens of rubber extracted from the bark of rubber lianas by simple grinding processes using native crushers and successive washings.

These specimens were prepared under the auspices of M. Gaillard, government commissioner in Khong. The crushed bark came from the liana called Khua-nhut-nhai which is found throughout all Laos.

The Colonial Office has published the results of the analysis of the specimens sent from Khong. The analysis was carried out under the direction of Dr. Heim, head of the Laboratory of the National Office for Foreign Trade [Office national du Commerce extérieur].

The following are the results of a comparison made between the rubber which was extracted from the liana Khua-nhut-nhai [137] by coagulation of the latex, according to this report, and the rubber extracted by grinding from the dry bark.

It is of particular interest to compare the rubber extracted from

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the liana by grinding the bark with that prepared by coagulation of the latex. The latter process probably includes spontaneous coagulation of the latex on the plant incisions, drawing the still soft gum into threads, and winding the gum threads into a ball immediately. We have been able to draw up this comparison thanks to a study previously made in the Laboratory of rubber from the Khua-nhut-nhai which was prepared in the same province of Khong from latex which was obtained by bleeding the plant.

The table below makes the comparison possible:

	Rubber extracted by grinding the dry bark. I	Rubber extracted by coagulation of the latex. II
Water	2.07%	1.8%
Inert matter	1.75	7.9
Resinous matter	1.05	4.9
Ashes	.32	.49
Water-soluble matter	1.14	1.7
Reducing agents	.19	.43
Nitrogenous matter	traces	traces
Rubber in the strict sense	93.5	82.78
Calculated losses in washing	4.94	11.4
Experimental losses in washing		12.2

This comparison lends itself to the following remarks:

The excess water noted in I may be attributed to the method of preparation itself, but it is too slight to cause any appreciable increase in the washing losses and, what is more, the very low hydration of II may be such as to facilitate its "turning oily" (if we accept the current and entirely empirical opinion of the experts).

The much higher losses in washing for II will lead I to be preferred, for the resiliency of I is at least equal to that of II, although II is quite noteworthy in this respect. The lower proportion of resinous matter in I again seems such as to give it the preference in this regard, yet the scope of this factor should not be exaggerated. I was analyzed as soon as received, whereas a lapse of time of about two to three months separated the date of the arrival of II in France and the date of the analysis, and as we know, time has a considerable influence on the resin content of all rubber.

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Having made these reservations, we are justified in concluding that I is a type of rubber which [138] is appreciably superior to II, although II deserves to be classified among the very good varieties of gum.

One last remark is, however, necessary. Before giving any final pronouncement as to the value of a type of rubber it is indispensable to subject it to the test of time, since its value is in direct proportion to its resistance to resinification. Under this heading I can nevertheless indicate already that rubber from the Khua-nhut-nhai (sample II) was subjected for three months to the worst kind of preservation conditions and that it withstood this trial admirably, not becoming subject to any resinification and not losing any of its elasticity.

There does not seem to be any doubt, moreover, but that the method of extracting rubber by grinding the bark gives a much higher yield of gum than can be obtained by the extraction method of bleeding the liana (assuming equal weights of fresh liana to be used in both cases).

I shall add, by way of indication, that according to the replies sent in answer to a questionnaire which was prepared under my direction at the request of a private corporation which exploits the rubber lianas of Laos, it appears to be a proven fact that cutting completely through the Khua-nhut-nhai lianas in no way compromises their vitality, on the express condition that the cutting be made above the level of the buds. Repeated bleedings of the same branch, on the other hand, yield an increasingly watery latex with an increasingly lower gum content.

The above information seems to me to be such that it might usefully be communicated to the agents of the administration, for it constitutes yet another argument in favor of exploiting the lianas exclusively by the method of grinding up the bark.

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III

It is of interest to note that the Superior Resident in Laos, following a long trip which he had just made between the Nam-Hou and the Mekong, remarked on the presence everywhere of numerous rubber lianas.

These lianas had not as yet been noted in the west. Colonel Tournier gave instructions for immediate exploitation to all the native chieftains who were not acquainted with the liana or its value.

654 What is more, according to the economic report for the months of February and March 1900 in Upper Laos, which has just reached the 314 Indo-China Department of Agriculture and Commerce, 3,250 kilo- 439 grams of rubber were exported during this period, or, to be precise, this was the verified figure at Vien-Tiane. The storehouses in this center also contained a large supply which would probably go down- 435 river at the first rises of the Mekong. [139] The sale price by natives at Vien-Tiane was said to be one piaster per kilogram.

Tran-ninh, which had not yet been able to supply any statistics, even approximate ones, indicated exports of 1,500 kilograms to Tonkin for the same period and at the same price as being the amount of export rubber which represented purchases from Vien-Tiane.

These prices, which are reasonable ones in view of the present value of money in Laos and the needs of the inhabitants, leaves the exporters sufficient profits. On the other hand, we have had occasion to note the entirely abnormal price of 5.50 francs per kilogram which rubber reached at Vinh towards the end of March 1900, a price which, when the cost of freight, transhipment and handling, insurance and losses in weight along the way is added, leaves only a small profit for the export trade.

IV

314 339,400 kilograms of rubber were exported from Indo-China 439 during 1900, as against 52,813 in 1899. Of this amount, 300,400 kilograms went out through Tonkin, and 39,000 kilograms through Saigon. The greater part of this rubber comes from Annam, and especially from Tran-Ninh (Laos).

By these figures we see how greatly the rubber trade has grown in Indo-China, and what a factor this raw material promises to be in the economic development of the colony.

The sale price in 1899 was one piaster per kilogram. Since that time it has risen appreciably in consequence of a rising demand from all quarters. In the province of Vien-Tiane the average price is two piasters per kilogram, and in the forests where the rubber is grown it costs 90 piasters per picul.

314 The rapid rise in the price of rubber has encouraged the natives to engage in excessive exploitation of the product, and without any care for the future they have destroyed large quantities of extremely productive lianas. The Laotians do not know how to collect the sap of the rubber plant and still spare the plant itself, and they thereby